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As the U.S. military reflects on recent operations in Iraq and Afghanistan, the realization the current operations planning process needs some adjusting is evident. The current operations planning process has proven to be slow to orient to the true nature of these conflicts, slow to gain a better understanding of the operational environment, and slow to adapt to change. Furthermore, these complex, adaptive environments place an increased need for whole of government solutions. However, the current U.S. military planning process struggles with effectively and efficiently providing these whole of government solutions. The U.S. Army is proposing design as a solution to the current planning processes' ills. This paper analyzes the effectiveness of the U.S. Army's design methodology to improve upon the current operations planning process. It provides two shortfalls of the U.S. Army's design methodology, and provides recommendations regarding the improvement of the operations planning process.

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THE U.S. ARMY'S DESIGN DOCTRINE: A SOLUTION TO THE ILLS OF THE OPERATIONS PLANNING PROCESSES?

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

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Abstract

As the U.S. military reflects on recent operations in Iraq and Afghanistan, the realization the current operations planning process needs some adjusting is evident. The current operations planning process has proven to be slow to orient to the true nature of these conflicts, slow to gain a better understanding of the operational environment, and slow to adapt to change. Furthermore, these complex, adaptive environments place an increased need for whole of government solutions. However, the current U.S. military planning process struggles with effectively and efficiently providing these whole of government solutions. The U.S. Army is proposing design as a solution to the current planning processes' ills. This paper analyzes the effectiveness of the U.S. Army's design methodology to improve upon the current operations planning process. It provides two shortfalls of the U.S. Army's design methodology, and provides recommendations regarding the improvement of the operations planning process.

INTRODUCTION

As the U.S. military reflects on recent operations in Iraq and Afghanistan, the realization the current operations planning process needs some adjusting is evident. Operations in Iraq and Afghanistan typify the nature of conflict that the U.S. has recently found itself executing. These operations feature a complex, adaptive environment spanning the full spectrum of conflict involving state and non-state actors utilizing irregular and hybrid warfare. The current operations planning process has proven to be slow to orient to the true nature of these conflicts, slow to gain a better understanding of the operational environment, and slow to adapt to change. Furthermore, these complex, adaptive environments place an increased need for whole of government solutions. However, the current U.S. military planning process struggles with effectively and efficiently providing these whole of government solutions. The U.S. Army is proposing design as a solution to the current planning processes' ills.

Although incorporating some great ideas on generating a learning environment, the U.S. Army's proposed design methodology fails to adequately address the ills of dealing with the interagency and through the development of a separate design function in the planning process risks ruining continuity and unity of effort across the planning community. As a solution to interagency coordination, design methodology continues to rely heavily on personal interactions among the interagency, which is no different from the current operations planning process. Design fails to offer a solution to the root cause of the difficulties associated with interagency coordination—lack of centralized authority across the interagency at the operational level. No doubt, bringing multiple, varied perspectives to bear on complex, adaptive problems has its merits, but simply placing an increased emphasis on

the discourse among the interagency will not prevent design from being vulnerable to the same ills that plaque the current planning process. Through the development of a separate design function in the planning process, the U.S. Army's design is attempting to disencumber the design team from the burdens of detailed planning and execution in order to facilitate iterative learning through assessment and reassessment of the assumptions that form the backbone of the operations plan. As a result, the commander's understanding of the operational environment is improved, and the planning process is more adaptive to the changing operational environment. Unfortunately, by separating design from planning, the crucial interface between and dependence among design, planning, and operations is severely weakened, which could easily result in misinterpretations and misunderstandings among the planning community.

Therefore, based on the shortfalls identified, the joint community should not wholly incorporate design in its planning processes. However, several of the aspects of design (e.g., increase interagency participation, creating a learning environment, continuous reassessment of assumptions) should be researched for incorporation into the current planning process. Finally, efforts at creating effective interagency organizations through better coordination and understanding need to continue.

BACKGROUND

Secretary of Defense Robert M. Gates in the 1st quarter 2009 *Joint Forces Quarterly* stated, "The international environment today is more complex and unpredictable than it has perhaps ever been."[1] Recent history has certainly proven this correct as the U.S. military has found itself in operations spanning the full spectrum of conflict involving state and non-state

[1] Robert M. Gates, "The National Defense Strategy: Striking the Right Balance," *Joint Forces Quarterly*, no. 52 (January 2009): 2-3.

actors utilizing irregular and hybrid warfare. These operations are multidimensional and do not readily lend themselves to true understanding and predictable solutions.[2]

Due to the complexity and adaptability of today's operational environments, there exists an increased pressure for agile and adaptive whole of government assessments and solutions. Today's operational environments are characterized as interactively complex systems where a large number of autonomous entities interface with one another and independently adapt to external infusions of energy.[3] As a result, the U.S. military's adversaries have the ability to rapidly innovate and adapt to the changing operational environment allowing them to exploit vulnerabilities "in domains not traditionally associated as being within the realm of military operations."[4] In effect, these adversaries have gotten inside the U.S.'s decision and execution loops allowing them to adjust operations across multiple domains quicker than the current U.S. planning processes can respond. For example, in Iraq, the current U.S. planning process failed to initially gain a true, or nearly true, understanding of the conflict, was slow to identify the changing nature of the conflict (i.e., growing insurgency), and continues to be challenged with providing whole of government solutions.

The U.S. Army's proposed design methodology is aiming to correct these deficiencies in the operation planning process. Through design, the U.S. Army aspires to gain a better understanding of the operating environment, establish a shared understanding among the involved agencies and nations, and continually reassess the environment.

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[2] Gary Luck, *Joint Operations Insights & Best Practices*, 2nd ed. (Norfolk, VA: Joint Warfighting Center, United States Joint Forces Command, 2008), 1.

[3] Richard M. Swain, "Commander's Business: Learning to Practice Operational Design," *Joint Forces Quarterly*, no. 53 (April 2009): 62.

[4] Luck, *Joint Operations Insights & Best Practices*, 2nd ed., 9.

According to the Army's draft FMI 5-2, "design provides a logical connection between understanding problem situations and developing adaptive approaches to meet objectives in the face of complexity while conducting full spectrum operations."[5] The U.S. Army envisions design as a replacement to the Joint Intelligence Preparation of the Operational Environment (JIPOE) and mission analysis steps of the Joint Operation Planning Process (JOPP). In addition to replacing the JIPOE and mission analysis steps of the JOPP, the U.S. Army proposes design as a continuous, iterative methodology, not just a step in the sequence of planning leading to execution. Through this continuous methodology, designers will repeatedly question the initial assessment of the operating environment and question whether operations are addressing the right problem, not merely, whether operations are performing according to plans. As a result, design methodology creates a learning organization where learning takes place during the initial assessment and later during execution when operations themselves will shed light and insight on the operations environment.

A critical component of the U.S. Army's design methodology is bringing together multiple perspectives from across the U.S. government and outside stakeholders in order to gain a shared understanding of the operations environment. TRADOC Pamphlet 525-5-500 states, "Ill-structured problems rarely have a single cause, and different stakeholders will see the relationships between the causes and their importance differently. Thus, understanding and formulation depend to some degree upon the perspective of the problem-solver rather than objective truth."[6] Thus, by bringing together varying perspectives from other agencies and nations, design will arrive at a shared understanding of the operations environment,

[5] Headquarters, Department of the Army, *Design*, Field Manual-Interim 5-2 (DRAFT, U.S. Army, Washington DC, 20 February 2009), 2.

[6] Headquarters, Department of the Army, *Commander's Appreciation and Campaign Design,* TRADOC Pamphlet 525-5-500 (Fort Monroe, VA: Headquarters, U.S. Army, Training and Doctrine Command, 28 January 2008), 10.

which not only will improve the commander's understanding of the operating environment and problem but also is essential to achieving unity of effort through unified action.[7] Another added benefit of bringing together multiple perspectives is that during the solution phase of design, the entire trade space of the nation's instruments of power can be considered as possible solutions to the ill-structured problem facing the design team "absent preconceived expectations regarding the method of its resolution."[8]

In order to achieve the freedom of thought and discourse necessary to gain a better understanding of the operations environment and consider all possible solutions, the Army's design methodology proposes divorcing design teams from the planning communities either permanently or temporarily. In doing so, commanders will create "'standing' design teams that operate independently from the battle rhythm of the headquarters."[9] By divorcing the design teams from the planning process, design will not be encumbered by the workload and biases associated with operations execution. The design teams will be freed up to concentrate on the overarching questions regarding the overall design of operations (e.g., are operations addressing the right problem, what new information or insight to the understanding of the problem has been gained as a result of operations, etc.?).

Another corps principle of the Army's design methodology is the use of a systemic, or holistic, understanding of the operational environment in order to gain insight and knowledge. As stated above, it is widely agreed upon that today's operational environments are characterized as complex, adaptive environments that do not lend themselves easily to

[7] Ibid., 21.
[8] Ibid., 22.
[9] Headquarters, Department of the Army, *Design*, Field Manual-Interim 5-2 (DRAFT, U.S. Army, Washington DC, 20 February 2009), 32.

understanding. Design proposes using systemic methodology[10] to overcome the difficulties in understanding associated with these environments. This paper does not delve into the intricacies associated with the representation or modeling of interactively complex systems. However, the reader should be aware that much discussion and academic capital has been expended on this subject discussing the pros and cons of complex systems representation.[11]

Finally, an overarching principle of the U.S. Army's design is the development of a learning culture within the design and planning communities. TRADOC Pamphlet 2-525-500 offers opportunities to learn on five levels during the assessment of operations as follows:

1) How to execute the planned course of action for a specific operation;
2) Whether another course of action needs to be adopted;
3) Whether the operational design based on the problem frame is producing results;
4) Whether the problem framing needs adjusting; and
5) Whether the learning mechanisms of the organization are tuned to the particular operational problem.[12]

TRADOC Pamphlet 5-525-500 maintains that current doctrine only addresses the first two opportunities.[13] In response, one of the cornerstones of design is generating hypotheses through the process of framing the environment, problem and solution. These hypotheses

[10] From the U.S. Army's DRAFT FMI 5-2, "systemic understanding means combining components of a system in a context and establishing the nature of their behavior and relationships."

[11] Richard M. Swain, "Commander's Business: Learning to Practice Operational Design," *Joint Forces Quarterly*, no. 53 (April 2009): 61-68.

Milan N. Vego, "A Case Against Systemic Operational Design," *Joint Forces Quarterly*, no. 53 (April 2009): 69-75.

Paul K. Van Riper, "EBO: There Was No Baby in the Bathwater," *Joint Forces Quarterly*, no. 52 (January 2009): 82-85.

[12] Headquarters, Department of the Army, *Commander's Appreciation and Campaign Design,* TRADOC Pamphlet 525-5-500 (Fort Monroe, VA: Headquarters, U.S. Army, Training and Doctrine Command, 28 January 2008), 18.

[13] Headquarters, Department of the Army, *Commander's Appreciation and Campaign Design,* TRADOC Pamphlet 525-5-500 (Fort Monroe, VA: Headquarters, U.S. Army, Training and Doctrine Command, 28 January 2008), 18.

capture the design team's and commander's understanding of the operational environment, the problem that they are facing, and possible solutions. Design then continuously and iteratively tests and reassesses these hypotheses through reframing. Design proponents argue the current operations planning process develops an initial understanding of the environment, problem and solution and then turns its focus to the execution of the operational plan. Learning is only accomplished through the assessment of past experiences. Learning about complex, adaptive environments is much more difficult and is absolutely essential to today's operational planning.[14] Design aims to develop a learning culture where the design team continually reassesses the initial hypothesis. Learning is accomplished at all levels of command through open discourse, exchange of information and knowledge, and questioning of assumptions. Thus, a commander is able to learn "about the nature and context of the problem as the campaign unfolds" and to adapt to the changing environment.[15]

DISCUSSION / ANALYSIS

Although incorporating some great ideas on generating a learning environment, the U.S. Army's proposed design methodology fails to adequately address the ills of dealing with the interagency and through the development of a separate design function in the planning process risks ruining continuity and unity of effort across the planning community.

Authority Across the Interagency

Design proponents place a considerable emphasis on the strength and importance of bringing multiple and varying perspectives to bear on complex, adaptive operational problems. Through these multiple perspectives from across the interagency and partner

[14] Ibid., 19.
[15] Ibid., 20.

nations, the commander aims to gain a more varied and nuanced understanding of the operational environment. In addition, through extensive discourse, the interested parties attain a shared understanding of the environment, problem, and solution as well as shared goals. As a result, unity of effort across whole of government solutions ensures the nation's instruments of power are applied efficiently and effectively to complex operational problems.[16]

Over the past few years, the difficulties of coordinating understanding, plans and actions across the interagency have been well documented. In April 2008, a House Armed Services Committee (HASC) Report investigated the performance of the Provincial Reconstruction Teams (PRT) in Iraq and Afghanistan and detailed their difficulties with operating among the interagency. The Office of the Special Inspector General for Iraq Reconstruction (SIGIR) identified similar findings. In a July 2007 report, SIGIR recommended "that the Secretaries of State and Defense issue a joint statement reaffirming that the PRT initiative is a DoS/DoD priority, clearly defining the mission, and delineating the lines of authority and coordination between civilian and military personnel."[17] The HASC report found that "PRT planning and operations started in an ad hoc manner and remain decentralized. The relevant departments have not articulated clear objectives for what they want PRTs to do, and they cannot effectively evaluate their performance."[18] Major issues identified within the report were lack of centralized objectives, no clear mission

[16] Headquarters, Department of the Army, *Design*, Field Manual-Interim 5-2 (DRAFT, Washington DC: U.S. Army, 20 February 2009), 1.

[17] Office of the Special Inspector General for Iraq Reconstruction, *Status of the Provincial Reconstruction Team Program Expansion in Iraq*, SIGIR-07-14 (Arlington, VA: Special Inspector General for Iraq Reconstruction, 25 July 2007), iii.

[18] U.S. House of Representatives, Committee on Armed Services, Subcommittee on Oversight & Investigations, *Agency Stovepipes vs Strategic Agility: Lessons We Need to Learn from Provincial Reconstruction Teams in Iraq and Afghanistan* (Washington DC: U.S. House of Representatives, House Armed Services Committee, April 2008), 18.

definition, and no standard doctrine or standard operating procedures among the PRTs. Although a Joint Campaign Plan exists on the strategic level, this guidance has not been translated down to the operational levels, which continue to operate a "pick up game."[19]

In addition, the HASC report detailed the difficulties associated with command and control. "Essentially, there are multiple chains of command: through the military, the Office of Provincial Affairs, the embassies, and Washington-based country representatives of the departments and agencies. The PRTs thus lack clear lines of authority, and the coordination between civilian and military personnel are disjointed and incoherent, which can have the unintended effect of making a PRT's operations personality-driven."[20]

Unfortunately, design methodology, which is no different from the current operations planning process, continues to rely heavily on these personal interactions among the interagency. The PRTs' experiences in Iraq and Afghanistan have proven that although coordination is possible when "a spirit of cooperation and unity prevails," the fact remains that cooperation is highly dependent upon "getting the right personalities together at the right place and time."[21] USSOCOM's Unified Quest 2007 and 2008 wargame series further illustrated this fact when senior civilian participants agreed that whole of government solutions are "about leveraging relationships within the interagency community" and "will never be as efficient as the military planning process."[22] Design fails to offer a solution to the root cause of the difficulties associated with interagency coordination—lack of centralized authority across the interagency at the operational level.

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[19] Ibid., 19.
[20] Ibid., 20.
[21] Ibid., 20.
[22] Kenneth C. Coons, Jr. and Glenn M. Harned, "Irregular Warfare Is Warfare," *Joint Forces Quarterly*, no. 52 (January 2009): 101.

In the 1st Quarter 2009 *Joint Forces Quarterly*, based on his experiences working with the Iraqi PRTs, retired Ambassador Henry L. Clarke offers the counterargument to centralizing operational control across the interagency. Ambassador Clarke argues that due to the complexity of the operational environment and the diversity among the various provinces of Iraq, decentralization "offers the best chances for success." Decentralization offers the PRTs the operational flexibility that is essential to developing tailored actions for each vastly diverse and unique province. As a result, according to Ambassador Clarke, the PRTs "have established close working relations with Iraqi officials, have effectively promoted political and economic accommodations and institutional development, and have great potential to do more." He contends that centralization risks "oversimplifying [the PRTs'] tasks and interfere in the most critical and creative contributions PRTs are making to coalition goals in Iraq."[23]

Although valid points regarding the complexity and uniqueness of today's operational environments, Ambassador Clarke's arguments are simply the standard concerns against centralizing control of operations—loss of flexibility at the tactical level. The fact remains that without centralized authority at the operational level, attaining unity of effort among the interagency will not and cannot be ensured. Cultural biases and varying agendas among the numerous government agencies play a significant role in preventing this unity of effort. As a result, operations risk being uncoordinated or worse yet, possibly acting in opposition to one another. At a minimum, without centralized authority, operations will result in a much less efficient use of the U.S.'s limited resources. Changes to the authorities associated with

[23] Henry L. Clarke, "Reconstructing Iraq's Provinces, One by One," *Joint Forces Quarterly*, no. 52 (January 2009): 141.

interagency coordination are required. Currently, authority across the interagency is only centralized at the strategic National Security Council level.

This paper does not discuss possible solutions to these difficulties (e.g., JIATF, MILGRP, Goldwater-Nichols for the interagency, etc.). However, the solution proposed by the Army's design methodology does not address the root cause to lack of unity of effort and operational environment assessment in today's complex environments and is sure to meet the same fate as the current operations planning process. No doubt, bringing multiple, varied perspectives to bear on complex, adaptive problems has its merits, but simply placing an increased emphasis on the discourse among the interagency will not prevent design from being vulnerable to the same ills that plaque the current planning process.

Separating Design and Planning

One of the central concepts of the Army's design methodology is the separation of operational design and operational planning. Design proponents contend that operational design is cognitively different from operational planning. Operational design "focuses on learning about an unfamiliar problem and exploits that understanding to create a broad approach to problem solving."[24] Whereas, operational planning, which uses the cognitive elements of "engineering", focuses on "establish[ing] the conceptual approach, or paradigm, for the solution to the problem."[25] The Army's TRADOC Pamphlet 5-525-500 states the required cognitive balance between design and engineering is dependent upon the complexity and structure of the operational environment. Less complex operational environments utilize

[24] Headquarters, Department of the Army, *Commander's Appreciation and Campaign Design*, TRADOC Pamphlet 525-5-500 (Fort Monroe, VA: Headquarters, U.S. Army, Training and Doctrine Command, 28 January 2008), 13.

[25] Headquarters, Department of the Army, *Commander's Appreciation and Campaign Design,* TRADOC Pamphlet 525-5-500 (Fort Monroe, VA: Headquarters, U.S. Army, Training and Doctrine Command, 28 January 2008), 14.

more engineering functions because the problem is understood and the focus of planning is on solving the problem. More complex problems, where planners do not understand the core nature of the problem, require more design functions. These design functions include "framing the problem and giving it structure."[26]

TRADOC Pamphlet 5-525-500 offers that today's planning processes are linear, technical, rational, and systematic. Through these linear processes, the focus is on applying established doctrine, rules and techniques to solve operational problems. TRADOC Pamphlet 5-525-500 argues that this linear, rigid planning is not adequate for today's complex environments, where "the hardest part of the problem is identifying and describing the problem." Design proponents argue the cognitive functions of design (i.e., creativity, art, etc.) are essential to deal with these complex problems.[27]

Based on the hypothesis that the cognitive functions of design and engineering (and presumably execution) are different, the draft FMI 5-2 states, "Design, planning, and execution are independent and complimentary activities." Thus, in the design methodology these activities are detached from one another into separate layers allowing them to operate independently. In particular, the design activities are permitted to "operate independently from the battle rhythm of the headquarters."[28] This enables the design teams to achieve the freedom of thought and discourse necessary to gain a better understanding of the operational environment and consider all possible solutions.

One can easily see design's aim in divorcing the design team from the headquarters. Design is attempting to disencumber the design team from the burdens of detailed planning

[26] Ibid., 13.
[27] Ibid., 14-15.
[28] Headquarters, Department of the Army, *Design*, Field Manual-Interim 5-2 (DRAFT, U.S. Army, Washington DC, 20 February 2009), 32.

and execution, which once begun typically becomes an all-consuming activity for the planning staff. If the design team is divorced from the planning process, the team is then free to concentrate on iterative learning through assessment and reassessment of the assumptions that form the backbone of the operations plan. Furthermore, the draft FMI 5-2 claims that by separating design from planning, tension will be created between the two, which can be "healthy and provides the commander another foil to garner balanced and reliable understanding of a situation."[29] Ideally, all of this improves the commander's understanding of the operational environment and allows the planning process to be more adaptive to the changing operational environment.

However, as Dr. Milan Vego pointed out in his April 2009 *Joint Forces Quarterly* article, "A Case Against Systemic Operational Design," "Separating operational design from the planning process, however, is a purely arbitrary solution and a potentially harmful one. It unnecessarily fragments the entire operational decisionmaking and planning process. Experience amply shows how dangerous it is to separate planners and executors of an operation."[30] The authors of the Army's draft FMI 5-2 are evidently also aware of the perils of separating design and planning and have dedicated an entire chapter, out of four chapters total, to "The Bridge to Planning: The Design—Plan Interface."[31] This chapter discusses translating the learning that has occurred during the design approach to operational terms for the planners. This translation is certainly a vulnerable exchange, where misinterpretations or misunderstandings are likely to occur.

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[29] Ibid., 32.

[30] Milan N. Vego, "A Case Against Systemic Operational Design," *Joint Forces Quarterly*, no. 53 (April 2009): 74.

[31] Headquarters, Department of the Army, *Design*, Field Manual-Interim 5-2 (DRAFT, U.S. Army, Washington DC, 20 February 2009), 29-35.

Additionally, design proponent's assertion that design, planning, and execution are independent is flatly wrong. These activities may be organized and conducted independently, but they are certainly not independent of one another. As the Army's TRADOC Pamphlet 5-525-500 points out, "a commander will not be able to understand the problem fully before beginning operations to solve it and will learn more about the true nature of the problem as he operates."[32] This interface and dependence among design, planning, and operations are crucial in attaining continuity and unity of effort across the planning and execution communities.

CONCLUSIONS

The U.S. Army's design methodology is attempting to address the identified issues with the current planning process—ineffective orientation to the true nature of current conflicts, slowness to gain a better understanding of the operational environment, and sluggishness to adapt to change. However, in attempting to address these issues, design fails to offer a solution to the root cause of the difficulties of interagency coordination—authority. Design really makes no improvements on the current planning process due to a continued reliance on interagency discourse for planning. Design is at its basic core an academically arrogant idea. Proponents have proposed that through the adaptation of the planning process and some added discourse among interested agencies and nations the U.S. military will arrive at a more optimal understanding of its operating environment and be more adaptable and thus more effective in carrying out operations to obtain strategic objectives. Although design discussions have provided considerable value added in raising the awareness of whole of

[32] Headquarters, Department of the Army, *Commander's Appreciation and Campaign Design,* TRADOC Pamphlet 525-5-500 (Fort Monroe, VA: Headquarters, U.S. Army, Training and Doctrine Command, 28 January 2008), 21.

government solutions, the proposed design methodology does not adequately address the root cause of interagency coordination problems—lack of authority. Without centralized authority at the operational level, unity of effort among the interagency cannot be ensured.

Furthermore, by divorcing design and planning, the U.S. Army's design aims to create a better understanding of the operational environment through continuous and iterative learning. Unfortunately, the separation of design and planning develops a planning community that will possess decreased continuity and unity of effort. As a result, design risks increasing the misinterpretations and misunderstandings among the planning community.

RECOMMENDATIONS

First, based on the shortfalls identified above, the joint community should not incorporate design in its planning processes. Although design discussions increase the awareness of the current planning process's issues, design fails to offer a solution that greatly improves upon the current process. As a result, the benefits of design (e.g., increase interagency participation, creating a learning environment, continuous reassessment of assumptions) can and should be incorporated into the current JOPP.

One of the major enablers to incorporating design's benefits will be a cultural change among the joint planning community. This cultural change should include a growing awareness of the holistic operations environment and an awareness of the vital need to continuously reassess planning assumptions. This cultural change, which has already started to take place with the current design dialogue, needs to be reinforced in our education and training, which is currently very military centric. An awareness of the complexities of current environments, possible whole-of-government solutions, and the need to be adaptable

to changing environments, as well as changing understandings of the environment, needs to be fully integrated into DoD education and training.

Next, there has been a significant amount of academic capital spent discussing the representation of complex problems in our operational environments. Not that all this effort is for naught, but much more effort needs to be expended at addressing the core goals of design—facilitating learning during our planning process and making our overall process more adaptable to complex fluid environments. For example, mechanisms for learning during operations need to be improved, and during the JIPOE, time, space, force factors need to be more inclusive to include a more holistic view of the operational environment.

Finally, the interagency needs to continue efforts to generate effective and efficient whole of government solutions to today's complex environments. Centralized authority would be an ideal solution; however, legislative change across the interagency is unlikely in the near future. Therefore, efforts at creating effective interagency organizations through better coordination and understanding need to continue.

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